WHAT IS CLAIMED IS:

1. A semiconductor circuit for an electro-optical device formed on a substrate comprising:

an active matrix circuit having a first plurality of thin film transistors; and

a peripheral driver circuit, having a second plurality of thin film transistors each including an active region, for driving the first plurality of thin film transistors,

wherein a metal element is included at concentration of 1×10^{16} to 5×10^{19} cm^{-3} in the active region of at least one of only the second plurality of thin film transistors, and each of the first and second plurality of thin film transistor has a channel forming region constructed by a silicon semiconductor thin film having mono-domain structure.

2. The circuit of claim 1 wherein the metal element includes at least one of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu, Ag, Au.

3. The circuit of claim 1 wherein the silicon semiconductor thin film includes a point defect of 1×10^{16} cm^{-3} or more, and one of hydrogen and halogen element for neutralizing the point defect at a concentration of 1×10^{15} to 1×10^{20} cm^{-3}.

4. The circuit of claim 1 wherein the silicon semiconductor thin film includes carbon and nitrogen at a concentration of 1×10^{16} to 5×10^{18} cm^{-3}, and oxygen at a concentration of 1×10^{17} to 5×10^{19} cm^{-3}.

5. The circuit of claim 1 wherein the silicon semiconductor thin film has a thickness of 200 to 2000 Å.

6. A semiconductor circuit for an electro-optical device formed on a substrate comprising:

an active matrix circuit having a first plurality of thin film transistors each including a first active region; and

a peripheral driver circuit, having a second plurality of thin film transistors each including a second active

region, for driving the first plurality of thin film transistors,

wherein a metal element is included at concentration of 1×10^{16} to 5×10^{19} cm^{-3} in the second active regions of at least one of only the second plurality of thin film transistors, and each of the first and second active regions is constructed by a silicon semiconductor thin film having mono-domain structure.

7. The circuit of claim 6 wherein the metal element includes at least one of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu, Ag, Au.

8. The circuit of claim 6 wherein the silicon semiconductor thin film includes a point defect of 1×10^{16} cm^{-3} or more, and one of hydrogen and halogen element for neutralizing the point defect at a concentration of 1×10^{15} to 1×10^{20} cm^{-3}.

9. The circuit of claim 6 wherein the silicon semiconductor thin film includes carbon and nitrogen at a concentration of 1×10^{16} to 5×10^{18} cm^{-3}, and oxygen at a concentration of 1×10^{17} to 5×10^{19} cm^{-3}.

10. The circuit of claim 6 wherein the silicon semiconductor thin film has a thickness of 200 to 2000 Å.

11. A semiconductor circuit for an electro-optical device formed on a substrate comprising:

an active matrix circuit having a first plurality of thin film transistors each including a first active region; and

a peripheral driver circuit, having a second plurality of thin film transistors each including a second active region, for driving the first plurality of thin film transistors, at least one second active region including a metal element at concentration of 1×10^{16} to 5×10^{19} cm^{-3},

wherein at least one first active region includes a metal element having a concentration different from the concentration of the metal element included in the second active region,

wherein each of the first and second active regions is constructed by a silicon semiconductor thin film having mono-domain structure.

12. The circuit of claim 11 wherein the metal element includes at least one of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu, Ag, Au.

13. The circuit of claim 11 wherein the silicon semiconductor thin film includes a point defect of 1×10^{16} cm^{-3} or more, and one of hydrogen and halogen element for neutralizing the point defect at a concentration of 1×10^{15} to 1×10^{20} cm^{-3}.

14. The circuit of claim 11 wherein the silicon semiconductor thin film includes carbon and nitrogen at a concentration of 1×10^{16} to 5×10^{18} cm^{-3}, and oxygen at a concentration of 1×10^{17} to 5×10^{19} cm^{-3}.

15. The circuit of claim 11 wherein the silicon semiconductor thin film has a thickness of 200 to 2000 Å.

16. A semiconductor circuit for an electro-optical device formed on a substrate comprising:

an active matrix circuit having a first plurality of thin film transistors each including a first active region; and

a peripheral driver circuit, having a second plurality of thin film transistors each including a second active region, for driving the first plurality of thin film transistors, at least one second active region including a metal element at concentration of 1×10^{16} to 5×10^{19} cm^{-3},

wherein at least one first active region includes a metal element having a lower concentration than the metal element included in the second active region,

wherein each of the first and second active regions is constructed by a silicon semiconductor thin film having mono-domain structure.

17. The circuit of claim 16 wherein the metal element includes at least one of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu, Ag, Au.

18. The circuit of claim 16 wherein the silicon semiconductor thin film includes a point defect of 1 x 10^{16} cm^{-3} or more, and one of hydrogen and halogen element for neutralizing the point defect at a concentration of 1 x 10^{15} to 1 x 10^{20} cm^{-3}.

19. The circuit of claim 16 wherein the silicon semiconductor thin film includes carbon and nitrogen at a concentration of 1 x 10^{16} to 5 x 10^{18} cm^{-3}, and oxygen at a concentration of 1 x 10^{17} to 5 x 10^{19} cm^{-3}.

20. The circuit of claim 16 wherein the silicon semiconductor thin film has a thickness of 200 to 2000 Å.

21. A semiconductor circuit for an electro-optical device formed on a substrate comprising:

an active matrix circuit having a first plurality of thin film transistors constructed by a silicon semiconductor thin film having crystallinity; and

a peripheral driver circuit, having a second plurality of thin film transistors each including an active region, for driving the first plurality of thin film transistors,

wherein a metal element is included at concentration of 1 x 10^{16} to 5 x 10^{19} cm^{-3} in the active region of at least one of only the second plurality of thin film transistors, and the active region of at least one of the second plurality of thin film transistor has mono-domain structure.

22. The circuit of claim 21 wherein the metal element includes at least one of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu, Ag, Au.

23. The circuit of claim 21 wherein the silicon semiconductor thin film includes a point defect of 1 x 10^{16} cm^{-3} or more, and one of hydrogen and halogen element for neutralizing the point defect at a concentration of 1 x 10^{15} to 1 x 10^{20} cm^{-3}.

24. The circuit of claim 21 wherein the silicon semiconductor thin film includes carbon and nitrogen at a concentration of 1 x 10^{16} to 5 x 10^{18} cm^{-3}, and oxygen at a concentration of 1 x 10^{17} to 5 x 10^{19} cm^{-3}.

25. The circuit of claim 21 wherein the silicon semiconductor thin film has a thickness of 200 to 2000 Å.

26. A method for forming a semiconductor circuit for an electro-optical device comprising the steps of:

forming an amorphous silicon film on a substrate having an insulating surface;

selectively forming a film including a metal element on an amorphous silicon film;

irradiating light to the amorphous silicon film to crystalize it and to form a plurality of mono-domain regions;

forming an active matrix circuit in at least one mono-domain region in which the metal element is not included; and

forming a peripheral matrix circuit in at least another one mono-domain region in which the metal element is included.

27. The circuit of claim 26 wherein the metal element includes at least one of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu, Ag, Au.

28. A method for forming a semiconductor circuit for an electro-optical device comprising the steps of:

forming an amorphous silicon film on a substrate having an insulating surface;

selectively adding a solution including a metal element on an amorphous silicon film;

irradiating light to the amorphous silicon film to crystalize it and to form a plurality of mono-domain regions;

forming an active matrix circuit in at least one mono-domain region into which the metal element is not included; and

forming a peripheral matrix circuit in at least another one mono-domain region into which the metal element is included.

29. The circuit of claim 28 wherein the metal element

includes at least one of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu, Ag, Au.

30. A method for forming a semiconductor circuit for an electro-optical device comprising the steps of:

forming an amorphous silicon film on a substrate having an insulating surface;

selectively introducing a metal element into an amorphous silicon film;

irradiating light to the amorphous silicon film to crystalize it and to form a plurality of mono-domain regions;

forming an active matrix circuit in at least one mono-domain region into which the metal element is not introduced; and

forming a peripheral matrix circuit in at least another one mono-domain region into which the metal element is introduced.

31. The circuit of claim 30 wherein the metal element includes at least one of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu, Ag, Au.

32. A method for forming a semiconductor circuit for an electro-optical device comprising the steps of:

forming an amorphous silicon film on a substrate having an insulating surface;

selectively introducing a metal element into an amorphous silicon film at different concentrations;

irradiating light to the amorphous silicon film to crystalize it and to form a plurality of mono-domain regions;

forming an active matrix circuit in at least one mono-domain region into which the metal element is introduced at a first concentration; and

forming a peripheral matrix circuit in at least another one mono-domain region into which the metal element is introduced a second concentration higher than the first concentration.

33. The circuit of claim 32 wherein the metal element includes at least one of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu, Ag, Au.

add > C9, D7, E1

add > C12, F5

add G11